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10/825,892	04/16/2004	Tadao Tomiyama	YOKOP014	8982

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *7/20/05*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Drawings

1.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference character(s) not mentioned in the

description: S110, S125 (Figure 4), and S240 (Figure 6). Corrected drawing sheets in

compliance with 37 CFR 1.121(d), or amendment to the specification to add the

reference character(s) in the description in compliance with 37 CFR 1.121(b) are

required in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing on the

immediate prior version of the sheet, even if only one figure is being amended. Each

drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If

the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the

drawings will not be held in abeyance.

Specification

2.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

The following title is suggested: Method, Apparatus, and Computer-Readable

Medium for Processing an Image While Excluding a Portion of the Image.

3.   The abstract of the disclosure is objected to because it includes the legal

phraseology "said acquired image data". Correction is required. See MPEP § 608.01(b).

4.   The disclosure is objected to because of the following informalities:

In the first sentence of paragraph 57, S11 should be S13.

In the third sentence of paragraph 72, color-determining unit 240b should be

color-determining unit 24b.

In the second sentence of paragraph 73, successive-pixel extractor 24b1 should

be successive-pixel extractor 240b1.

Appropriate corrections are required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

5.   Claim 11 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter as follows. Claim 11 defines an image-

processing program product embodying functional descriptive material. However, the

claim does not define a computer-readable medium or memory and is thus non-

statutory for that reason (i.e., "When functional descriptive material is recorded on some

computer-readable medium it becomes structurally and functionally interrelated to the

medium and will be statutory in most cases since use of technology permits the function

of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of

the presently claimed image-processing program product can range from paper on

which the program is written, to a program simply contemplated and memorized by a

person. The examiner suggests amending the claim to embody the program on

"computer-readable medium" or equivalent in order to make the claim statutory. Any

amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-3 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over the article, "Color Image Segmentation for Multimedia Applications", by N.

Ikonomakis, K.N. Plataniotis, and A.N. Venetsanopoulos in view of Kuwata (U.S. Patent

6,351,558).

With respect to claim 1, Ikonomakis et al. propose a method of color image

segmentation that is effective in segmenting a multi-media-type image into regions

(abstract). Ikonomakis describe that image data, represented by a plurality of pixels, is

acquired. Regions of pixels (artificial image) are defined by grouping together

neighboring pixels that satisfy some homogeneity criterion. One of the types of

homogeneity criteria described is color similarity (page 9, section 2.3).

Ikonomakis et al. describe that segmentation is usually the first task of any image

analysis process, but they do not describe a specific image analysis process, such as

excluding the region (artificial image) before performing the image analysis process.

Kuwata discloses an image processing system capable of judging the type of

image automatically on the basis of image data and performing an optimum image

processing (column 2, lines 40-45). Kuwata describes that the system includes a frame

discriminating mean which, on the bases of the image data, judges a portion including

an extremely large number of certain pixels to be a frame portion (artificial image), and

an image data excluding means which excludes from the image processing the image

data of pixels having been judged to be a frame portion (artificial image) (column 16,

line 66 – column 17, line 3).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to excluding certain portions of an image from the image processing, as taught

by Kuwata, with the color image segmentation steps of Ikonomakis et al., in order to

improve the outcome of the image processing (Kuwata, column 2, lines 40-45).

With respect to claim 2, as discussed above, Ikonomakis et al. propose a

method of color image segmentation that is effective in segmenting a multi-media-type

image into regions (abstract). Ikonomakis describe that image data, represented by a

plurality of pixels, is acquired. Regions of pixels (artificial image) are defined by

grouping together neighboring pixels (successive pixels) that satisfy some homogeneity

criterion. One of the types of homogeneity criteria described is color similarity

(prescribed specific color) (page 9, section 2.3).

With respect to claim 3, as discussed above, Ikonomakis et al. propose a

method of color image segmentation that is effective in segmenting a multi-media-type

image into regions (abstract). Ikonomakis describe that image data, represented by a

plurality of pixels, is acquired. Regions of pixels (artificial image) are defined by

grouping together neighboring pixels (successive pixels) that satisfy some homogeneity

criterion. One of the types of homogeneity criteria described is color similarity (same

color) (page 9, section 2.3).

With respect to claim 8, as discussed above, Ikonomakis et al. propose a

method of color image segmentation that is effective in segmenting a multi-media-type

image into regions (abstract).

Ikonomakis et al. describe that segmentation is usually the first task of any image analysis process, but they do not describe a specific image analysis process, such as excluding the region (artificial image) before performing the image analysis process.

As discussed above, Kuwata discloses an image processing system capable of judging the type of image automatically on the basis of image data and performing an optimum image processing (column 2, lines 40-45). Kuwata describes that the system includes a natural picture (natural image) discriminating means. If the number of colors judged in the image data is a predetermined number of colors or more, the natural picture (natural image) discriminating means judges that the image data represents a natural picture (natural image). When the image data represents a natural picture (natural image), an image processing procedure is applied to the image data (column 6, lines 27-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to excluding certain portions of an image from the image processing, as taught by Kuwata, with the color image segmentation steps of Ikonomakis et al., in order to improve the outcome of the image processing (Kuwata, column 2, lines 40-45).

With respect to claim 9, as discussed above, Ikonomakis et al. propose a method of color image segmentation that is effective in segmenting a multi-media-type image into regions (abstract). Ikonomakis describe that image data, represented by a plurality of pixels, is acquired. Regions of pixels (artificial image) are defined by grouping together neighboring pixels that satisfy some homogeneity criterion. One of

the types of homogeneity criteria described is color similarity (color quantity of the artificial image is close to a pre-stored reference color quantity) (page 9, section 2.3).

With respect to claim 10, the "image processing apparatus" corresponds to the "image processing method" of claim 1. The argument is the same as is addressed above.

With respect to claim 11, the "image-processing program product" corresponds to the "image processing method" of claim 1. The argument is the same as is addressed above.

7.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikonomakis et al. and Kuwata as applied to claims 1-3 and 8-11 above, and further in view of Roy et al. (U.S. Patent 6,956,569).

As discussed above, Ikonomakis et al. propose a method of color image segmentation that is effective in segmenting a multi-media-type image into regions (abstract). Ikonomakis describe that image data, represented by a plurality of pixels, is acquired. Regions of pixels (artificial image) are defined by grouping together neighboring pixels (successive pixels) that satisfy some homogeneity criterion. One of the types of homogeneity criteria described is color similarity (prescribed specific color) (page 9, section 2.3). As discussed above, Kuwata discloses an image processing system capable of judging the type of image automatically on the basis of image data and performing an optimum image processing (column 2, lines 40-45).

Neither Ikonomakis et al., nor Kuwata et al. describe extracting portions of an image if the ordinates or abscissas of the edges of the portions are coincident.

Roy et al. disclose a method for recognizing and identifying a face or other object from among a stored database of 3D models when presented with an arbitrary 2D photograph of a face or object, under arbitrary pose and lighting conditions (column 1, lines 11-16). Roy et al describe that it is well-known to extract features, such as parallel edges (ordinates or abscissas of edges are coincident), from images (column 1, lines 31-36).

It would have been obvious to one of ordinary skill in the art at the time of the invention use the parallel edges feature, as taught by Roy et al., along with the color feature to extract portions of an image in the color image segmentation steps of Ikonomakis et al. and Roy et al., in order to improve the outcome of the image processing.

8.   Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikonomakis et al. and Kuwata as applied to claims 1-3 and 8-11 above, and further in view of Katsuhiro et al. (JP Publication 08-062741).

With respect to claim 5, as discussed above, Ikonomakis et al. propose a method of color image segmentation that is effective in segmenting a multi-media-type image into regions (abstract). As discussed above, Kuwata discloses an image processing system capable of judging the type of image automatically on the basis of image data and performing an optimum image processing (column 2, lines 40-45). Kuwata describes that the system includes a frame discriminating mean which, on the bases of the image data, judges a portion including an extremely large number of certain pixels to be a frame portion (artificial image), and an image data excluding

means which excludes from the image processing the image data of pixels having been

judged to be a frame portion (artificial image) (column 16, line 66 – column 17, line 3).

Neither Ikonomakis et al., nor Kuwata describe the correcting the gradation of an

image.

Katsuhiro et al. disclose a gradation compensator for improving image quality for

a video printer (paragraph 1). Katsuhiro describe that a gradation amendment section

107 generates an optimal gradation amendment curve based on information from the

image and generates an optimum picture using the amendment curve (revises the

tendencies of gradation of the image by revising the gradients of each pixel) (paragraph

77).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to use the gradation compensator, as taught by Katsuhiro et al., in image

processing procedure of the color image segmentation steps of Ikonomakis et al. and

Roy et al., in order to obtain optimum gradation correcting of the image (Katsuhiro et al.,

Constitution section).

With respect to claim 7, as discussed above, Ikonomakis et al. propose a

method of color image segmentation that is effective in segmenting a multi-media-type

image into regions (abstract). As discussed above, Kuwata discloses an image

processing system capable of judging the type of image automatically on the basis of

image data and performing an optimum image processing (column 2, lines 40-45).

Kuwata describes that the system includes a frame discriminating mean which, on the

bases of the image data, judges a portion including an extremely large number of

certain pixels to be a frame portion (artificial image), and an image data excluding

means which excludes from the image processing the image data of pixels having been

judged to be a frame portion (artificial image) (column 16, line 66 – column 17, line 3).

Neither Ikonomakis et al., nor Kuwata describe determining whether image data

is of backlight or not.

Katsuhiro et al. disclose a gradation compensator for improving image quality for

a video printer (paragraph 1). Katsuhiro et al. judges backlight from brightness and

shape of a dark part by blocking and binarizing the image and calculating backlight

degree from an estimation of face brightness of a person (Constitution section).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to use the backlight judging section, as taught by Katsuhiro et al., in the image

processing procedure of the color image segmentation steps of Ikonomakis et al. and

Roy et al., in order to obtain an image judging result with higher precision (Katsuhiro et

al., Constitution section).

9.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Ikonomakis et al. and Kuwata as applied to claims 1-3 and 8-11 above, and further in

view of Katsuhiro et al. and Tatsumi (U.S. Patent Publication 2003/0085894).

As discussed above, Ikonomakis et al. propose a method of color image

segmentation that is effective in segmenting a multi-media-type image into regions

(abstract). As discussed above, Kuwata discloses an image processing system capable

of judging the type of image automatically on the basis of image data and performing an

optimum image processing (column 2, lines 40-45). Kuwata describes that the system

includes a frame discriminating mean which, on the bases of the image data, judges a

portion including an extremely large number of certain pixels to be a frame portion

(artificial image), and an image data excluding means which excludes from the image

processing the image data of pixels having been judged to be a frame portion (artificial

image) (column 16, line 66 – column 17, line 3).

Neither Ikonomakis et al., nor Kuwata describe determining whether image data

is of backlight or not.

Katsuhiro et al. disclose a gradation compensator for improving image quality for

a video printer (paragraph 1). Katsuhiro et al. judges backlight from brightness and

shape of a dark part by blocking and binarizing the image and calculating backlight

degree from an estimation of face brightness of a person (Constitution section).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to use the backlight judging section, as taught by Katsuhiro et al., in the image

processing procedure of the color image segmentation steps of Ikonomakis et al. and

Roy et al., in order to obtain an image judging result with higher precision (Katsuhiro et

al., Constitution section).

Neither Ikonomakis et al., Kuwata, nor Katsuhiro et al. describe increasing the

brightness of a darker part of an image.

Tatsumi discloses an image display method that is capable of sufficiently

representing glossiness on a subject surface and the texture of a subject (paragraph

14). Tatsumi describes that the brightness of the dark part areas of an image is

increased to the same level as the diffuse reflection image in the formation of a

composite image (paragraph 80).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to increase the brightness of a darker part of an image, as taught by Tatsumi,

in the image processing procedure of the color image segmentation steps of Ikonomakis

et al., Roy et al., and Katsuhiro et al., in order to improve the outcome of the image

processing.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Fukushima et al. (U.S. Patent 5,940,530) disclose an apparatus for printing video

images by detecting the percentage of backlighting or people in an image (abstract).

Hata (U.S. Patent 6,067,377) discloses an image forming apparatus having a

correcting function for preventing toner from scattering around edge portions of line

images (abstract).

Homma et al. (U.S. Patent 5,565,918) disclose an exposure control device that

includes a judging circuit which detects a back light image plane of the basis of a

difference in level between video signals corresponding to the inside and the outside of

the light measuring area (abstract).

Ichikawa (U.S. Patent 6,795,212) discloses a parameter determining part that

determines a parameter for an automatic image correction in accordance with inputted
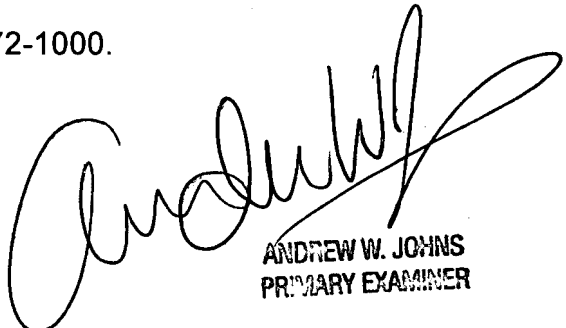
images to be printed. The parameter is set for all images in a set in order to prevent the

printed images from being different in color, gradation, and gray balance (abstract).

Hiroki (JP Patent Publication 2000-004393) determines whether an image which

is picked up is a back light scene or not, through the use of digital image data picked up

by a digital camera and a scanner (page 1).

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Damon Conover whose telephone number is (571) 272-

5448. The examiner can normally be reached Monday – Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax number for the

organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call

(800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

ANDREW W. JOHNS
PRIMARY EXAMINER